User Guide

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January 21, 2008

Outline

User's Guide

- Each team will produce a user guide describing the installation, use, troubleshooting etc for their product
- Examples
    - Previous capstone projects are on WebCT
    - Manuals for any software product
- Informal document
- Know your audience
    - Assume the IBM judges are your audience
    - Assume little prior knowledge of the software or the application domain
    - Assume basic computer literacy
- IBM judges will use this so that they have a feel for your product in advance of the final demonstration day
- Preparing the user manual will help you think about usability requirements

Marking Scheme

- Spelling and grammar (15 %)
    - Each mistake takes off 5 % to a maximum of 15 %
    - First two mistakes are without penalty
- Style (10 %)
    - Paragraph structure (logical grouping of ideas)
    - Concisely expressed ideas (not overly wordy)
    - Flow between paragraphs and sections
    - Appropriate "pointers" in the document to help someone navigate it
    - etc.
- Overall opinion of content (20 %)
    - Can the instructions be followed just from the manual?
    - Is the manual easy to read?
    - Is the manual enjoyable to read?

User Manual Marking Scheme Cont'd

- Overall opinion of content (continued)
  - Demonstrate that you have thought about the software
  - Show originality and creativity
- Report components and content (55 %)
  - Components such as
    - Installation
    - Simple tasks
    - Complex tasks
    - Troubleshooting
    - Frequently asked questions
    - Etc.
  - Necessary background information on application domain

User Manual Marking Scheme Cont'd

- Report components and content (Continued)
    - Will inspect with specific tasks in mind, such as
        - Install
        - Open, Save, Close, etc. a file
        - Starting up a session
        - Communicate with the Pacemaker board
        - Programming and monitoring a Pacemaker board
    - Appendices (if necessary)
    - Reference list
    - Index (if necessary)
    - Glossary (if necessary)

Evaluation of User's Guide

- Expect between 20 to 30 pages
- No page limit, double space
- Pictures and figures will be necessary
- Provide background information, step-by-step installation, step-by-step usage, troubleshooting, etc.
- Consider this document to be a promotional tool - emphasize what is best about your system
- A checklist is a good idea for writing the document, but it does not need to be included

User Manual Guidelines

- Page # should be on each page
- Break the text into sections
    - Text should usually appear between all section headings
    - If a section has subsections, the number of subsections should be greater than one
- Citations for ideas and for direct quotes (in-line for short quotations and indent and single space for long quotations)
- User guide should be as self-contained as possible

User Guide Content Details

- Title page
- Legal and copyright information
- Safety and precaution pages (precautions with the pacemaker boards and with data integrity)
- Table of contents
- List of tables, List of figures
- Precise definitions
- Step-by-step instructions
- Maintenance and troubleshooting information
- Frequently asked questions
- Warranty information
- Possibly a glossary and an index

Defining Terms

- Chapter 7 of VanAlstyne (2005)
- Know your audience
- Methods for definition
    - Parenthetical: "However, you only need the version with a graphical user interface ... on the machine where you're actually going to display the interface (the *client* machine)." (Unision Manual)
    - Brief phrase: "Subversion is a centralized system for sharing information. At its core is a repository, which is a central store of data." (Svn Manual)
    - Sentences
    - Extended definitions

Definition Fallacies

- Too technical
- Too broad
- Too narrow
- Circular

Too Broad, Circular

Commonality: **Something two things have in common.**

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Commonality: Something two things have in common.

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Commonality: **A requirement or goal shared by all program family members.**

Too Narrow

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Goal: **"Goals capture, at different levels of abstraction, the various objectives the system under consideration should achieve." (Lamsweerde 2001)**

Too Technical

Program Family: **A set of** sequences of operations that can be performed by a Turing-complete system**, where these sequences can be analyzed and designed together starting from the initial stages of the software development life-cycle.**

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Program Family: **A set of programs that are analyzed and designed together starting from the initial stages of the software development life-cycle.**

Techniques for Definition

- Examples
- Description
- Synonym
- Contrast/Negation
- Comparison
- Analogy
- Graphics

Definition Using a Synonym

Program Family: A set of programs that are analyzed and designed together starting from the initial stages of the software development life-cycle. Also known as a software product line.

Definition Using Examples

Element: A domain can be discretized into smaller, usually simpler, shapes called elements. The typical shapes for elements in 1D is a line, in 2D is a triangle or a quadrilateral, and in 3D a tetrahedron or a hexahedron. Elements are also called cells.

Giving Instructions

- Chapter 9 of VanAlstyne (2005)
- Chapter 7 Blicq (1987)
- Define your audience
  - Level of technical knowledge
  - Familiarity with application domain
- Start with a plan
  - (a) *What* has to be done
  - (b) *Why* it has to be done
  - (c) *What* information is needed
  - (d) *How* the work is to be done

Giving Instructions Continued

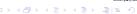(a) *What* **via a summary statement**

Giving Instructions Continued

(a) *What* via a summary statement
- **The 28 Vancourt Model AL-8 overhead projectors in rooms A4 and A32 are to be bolted to their projection tables...**

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  - The 28 Vancourt Model AL-8 overhead projectors in rooms A4 and A32 are to be bolted to their projection tables...

(b) ***Why* via a purpose statement**

Giving Instructions Continued

(a) *What* via a summary statement
  - The 28 Vancourt Model AL-8 overhead projectors in rooms A4 and A32 are to be bolted to their projection tables...

(b) *Why* via a purpose statement
  - **... to reduce the current high damage rate caused by projectors being accidentally knocked onto the floor.**

Giving Instructions Continued

(c) *What information* is necessary before beginning via a short paragraph/list, for instance:

Example: *What information*

Before beginning you will need:

- Sympatico User ID
- Access Password
- Sympatico email address

(d) *How* via step-by-step instructions

Example: *How*

1. Turn off your Anti-Virus and Firewall Software as this software will interfere with the installation process
2. Place the Software Setup CD in your computer's CD-ROM drive

Clear and Concise Instructions

- Before the trap is set, it is a good idea to place a small piece of cheese on the bait pan. If it is too small it may fall off and if it is too big it might not fit under the serrated edge, so make sure you get the right size
- Before setting the trap, wedge an 8 mm cube of cheese firmly under the serrated edge of the bait pan

Clear and Concise Instructions

- Cut a 0.62 m length of 10-gauge wire and strip 20 mm of insulation from each end. Solder one end of the wire to terminal 7 and the other end to pin 49.

Do's and Don't's

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- Add some jokes to your instructions.
- **Give a detailed description of the system (e.g. what the video player looks like).**

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Don't:

- Add some jokes to your instructions.
- Give a detailed description of the system (e.g. what the video player looks like).
- **Show off your technical knowledge of the product.**

Example: Bad and Good Instructions

Situation

The VCR timer is broken. You need to have your favourite show taped, since you're going out, but your CompEng roomie is hopeless - he just can't remember how to use the VCR. So you're going to have to leave him instructions on how to operate the video recorder.

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The Wrong Way:

D00d! Let's see if we can get it right this time. I don't want to be watching Desparate Housewives like last time! You need to put the video in the machine and then press the record button. That's the small red one which is a little to the left of the play button, which looks like a Smartie with an arrow on it - you can't miss it. The stop button is just below the play button, I think. Oh, by the way, don't forget to rewind the tape first, and you'll need to change the channel too probably.

Example: Bad and Good Instructions (cont)

The Right Way:

Put the tape in the machine.

Press rewind and wait until the rewinding has finished.

Change the channel to 5.

The record button is the red one in the top left corner. Press it.

Check the recording light is on.

Press stop when the programme has finished.

Give your Reader Confidence

- Write in the imperative mood
- Start each step with a strong verb (usually)
- In some cases the start will be an introductory clause followed by a strong verb
- Make the instructions commands
- Instructions tell the user to do something
- Examples
  - Ignite the mixture ...
  - Mount the external hard drive ...
  - Create and display the report ...
  - Choose the OK button.

Imperative Mood

- Which of the following are in the imperative mood?
  - Disengage the gear, then start the engine
  - The gear should be disengaged before starting the engine
  - Before connecting the meter to the power source, set all the switches to "zero"

Avoid Ambiguity

- Enter an appropriate password
- Enter a password with between 6 and 10 characters, where at least one character has to be nonalphabetic
- Turn on the computer
- Depress the ON/OFF key to the ON position
- Allow the glue to dry adequately
- Allow the glue to dry for six hours

Avoid Indefinite Words

- Avoid "should," "could," "would," "might," and "may"
- Select the data. A plot should appear in the centre of the screen.
- Select the data. A plot will appear in the centre of the screen.

Tell the Reader What to Expect

- Press Enter to begin the backup process. This process may take several hours to complete depending on the size of your files.
- Type the name of the installation directory. If this directory does not already exist it will be created.

Write Bite-Size Steps

- One step per instruction
- Potentially use sub-steps to describe a complex step

1. If required, click **Reset to Factory Defaults**
2. Click **Reboot**
    1. If the **Reset to Factory Defaults** option was selected, the systems responds with ...
    2. Click the **Reset to Factory Defaults** button to confirm, or click **Cancel** to return to the System Reboot screen
3. A status screen begins a 45 second countdown to ...

Insert Fail-Safe Precautions

- Warnings: To alert the readers to potential damage to firmware, or erasure of data, damage to Pacemaker board, etc.
- Cautions: To tell the reader that care is needed, such as quitting all open applications or recording sensitive data before proceeding to the next screen
- Notes: To make general comments, such as noting that the hot keys have been changed between versions of the software

Use Consistent Typographic Conventions

- **Warnings**
- `Courier font for text typed as input`
- ALT+h, CTRL+ENTER, etc.

Inspect Via an Operational Check

- Test for usability
- The final test for any technical instruction is the reader's ease in following it
- You will not be able to help the reader; they will only have your instructions
- Give the draft instructions to someone with the skills typical of your audience and observe them
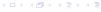- Make notes
- Rewrite ambiguous steps

Conclusions

- Your User Manual is the one piece of documentation the majority of you customers will actually ever see!
- Good manuals "sell" products (e.g. VW New Beetle, Subversion)
- Its the one thing most of the judges will look at so put effort into it!

For Further Reading I

📄 Ron Blicq.
Technically-Write!
Prentice Hall, 1987.

📄 Axel van Lamsweerde.
Goal-oriented requirements engineering: a guided tour.
In *Proceedings of the 5th IEEE International Symposium on Requirements Engineering*, pages 249–263. IEEE, IEEE Computer Society, Washington, DC, USA, August 2001.

📄 Judith S. VanAlstyne.
Professional and Technical Writing Strategies.
Pearson Prentice Hall, Upper Saddle River, New Jersey, sixth edition, 2005.